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ABSTRACT

This paper describes the preliminary results from a longitudinal study of student teacher attrition and retention. The sample consisted of 316 students in an initial course in teacher education. Data collection included the following: high school grade point ratio (GPR); SAT scores; other demographic information, such as education of father and mother; and scores on McCarthy's Learning Type Measure (LTM), which reports four learning styles or types. Multiple regression analysis revealed four significant variables that predicted spring GPR in descending order: (1) SAT-V score; (2) high school GPR; (3) level of father's education; and (4) thinking/reflection score on the LTM. The paper discusses implications for college retention based on these data. Programs should be more closely tailored to the needs of particular subgroups. Students with lower SAT-V scores may need assistance in study skills and areas of academic instruction. First-generation college students require a different form of assistance, such as special advising sessions to discuss unfamiliar processes. Students with varied learning styles may perform better when instruction matches their preferred learning styles. (Contains 23 references.) (Author/SM)

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Predicting Student Retention in Teacher Education Programs

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Abstract

Presenters describe preliminary results from a longitudinal study of attrition and retention. The sample consisted of 316 students in an initial course in teacher education. Data collection included the following: high school GPR; SAT scores; other demographic information such as education of father and mother; and scores on McCarthy's Learning Type Measure (LTM) which reports four learning styles or types. Multiple regression analysis revealed four significant variables that predicted spring GPR in descending order: (1) SAT-V score; (2) high school GPR; (3) level of father's education; and (4) thinking/reflection score on the LTM. Presenters discuss implications for college retention based on these data. Programs should be more closely tailored to the needs of particular subgroups. Students with lower SAT-V scores may need assistance in study skills and areas of academic instruction. First-generation college students require a different form of assistance such as special advising sessions to discuss unfamiliar processes. Students with varied learning types may perform better when instruction matches their preferred learning styles.

Statement of the Problem

Why do college freshmen who enroll in an initial course in teacher education decide not to continue in that program? What information will allow university faculty and administrators to predict which of those students will remain in college? What can undergraduate faculty do to increase retention of students in the early years of both their general education and teacher education course work? These three questions guide a two-year investigation of attrition and retention in undergraduate teacher education at Winthrop University, a southeastern comprehensive university.

Universities must necessarily be concerned about graduating well-prepared teachers. Current and predicted shortages in the supply of teachers raise the level of concern (Hardy, 1998; "Wanted," 1997). Reports throughout the 1990s indicated teacher shortages and projected dramatic increases in the demand for teachers (Barkum, 1997; Boe, 1996; Ingersoll, 1994; Wilson & Pearson, 1993). In addition, a recent regional report noted a continual search for teachers in the eight states comprising the southeastern area of the United States (Columbia Group, 1997). With population in the eight states projected to grow, demographers forecast teacher shortages in the early decades of the 21st century. Moreover, public schools are losing male and minority group teachers at the rate of about one percent a year, making these particular students those whom teacher preparation programs should be especially concerned about retaining and graduating (Brown, 1998).

Many students are at first committed to the pursuit of teaching as a career but decide later, after an initial education course or two, against teaching as a profession. At Winthrop University, as at most universities, the dropout rate for students who show an initial interest in teacher education is substantial. In 1993-1994, for example, 298 students completed an introductory course in teaching as a profession, but only 155 students were concurrently enrolled in the senior year core curriculum. Because the issue of retention impacts performance funding for many colleges and universities in the region, the twin goals of understanding the reasons for students' attrition and planning sound ways to assist their retention become even more critical.

Literature Review

Several factors may contribute to reasons why students leave teacher education in their first two years at Winthrop University: failure to attain the requisite grade point ratio (GPR); insufficient level of initial commitment; and mismatch between learning style types of students and faculty in the first two years of instruction. Each of these factors is supported, in part, by data from a review of related literature.

First, many students who drop out of teacher education programs may do so because they fail to attain the requisite GPR. In an early study of factors leading to the retention of students in teacher education, Wilk found that only grade point average contributed significantly to prediction (1969). At Winthrop University prior to 1997, the GPR required for admittance to and graduation in teacher education was a 2.5. For students entering in the fall of 1997 and thereafter, the level was raised to 2.75, making the plausibility of attrition due to GPR more likely.

In addition, selected demographic variables may contribute to the attainment of the level of GPR required for retention. For example, students' academic needs may vary according to whether they are the first generation to attend college. Current retention studies indicate that student bodies in some urban campuses are becoming more non-traditional, that is "predominantly working class, commuter, working (most part-time, many full-time) first-generation-to-college, and ethnic 'minority.' " (Pacheco, 1994, p. 54). For non-traditional students, colleges need to design retention programs to assist particular them at points early enough in their studies to help them attain the GPRs necessary for program entrance and completion. Working-class students, for example, who represent first-generation college students are less likely to seek out advisors or

other avenues of support available in higher education (Pacheco, 1994); these students need specific proactive intervention. Other non-traditional students, however, may need assistance designed to help them learn appropriate study habits and self-management techniques (Jenkins, 1981).

Second, certain students may leave teacher education programs due to lack of initial commitment. Some research indicates that strength of initial commitment to teaching as a career is a good predictor of program completion (Pigge & Marso, 1992). To meet the needs of wavering students, faculty may be able to provide information to address concerns exacerbated by a lesser degree of initial commitment. For instance, students of today's generation want practical training related to a specific job rather than information that is broadly applicable to careers in general (Schroeder, DiTiberio, & Kalsbeek, 1989).

Third, a mismatch may exist between the learning types of students and the teaching styles of their professors. Many factors are likely to influence college students' decisions about selection of major and completion of degree programs, but little research exists about the relationship of learning styles or types. Learning styles, which tend to follow certain patterns of distribution in both general and college populations, are correlated with academic aptitude, college achievement, and choice of major (Schroeder, 1993). Prior research shows differences in learning styles among college freshmen according to gender but not according to major and race (Matthews, 1991). Schroeder (1993) contends that today's college students process learning in ways vastly different from the styles preferred by their professors. Some colleges have implemented retention programs designed to bridge the gap between professors' teaching styles and students' learning styles (Pacheco, 1994) and to help instructors incorporate information about learning styles into their teaching techniques (Kelly, 1992). This study attempts to determine if students with certain learning types are more likely to leave the teacher education program at Winthrop University and which types of college learners are more likely to complete the program.

Hypotheses

Researchers posed four hypotheses about why students leave teacher education.

1. A relationship exists between students' SAT scores, their GPRs, and their remaining in teacher education. Students with higher SAT scores have higher GPRs and are more likely to remain in teacher education.

2. A relationship exists between students' strength of initial commitment and their remaining in teacher education. Students with a higher degree of initial commitment are more likely to stay.

3. A relationship exists between students' learning styles or types and their continuing in or leaving teacher education. Type 2 LTM (highest "thinking/reflecting" score on the Learning Type Measure) students are more likely to continue, and Type 3 LTM (highest "doing/reflecting" score on the Learning Type Measure) students are more likely to leave.

4. A relationship exists between the occupation and educational level of students' parents and their remaining in teacher education. Students whose parents have more education and white-collar jobs are more likely to stay.

Description of Sample

The sample for this study contained 316 students who took an entry level education course in the fall of 1998 or spring of 1999. The mean age for the group was 20, the average high school GPR was 3.2, and the mean SAT was 1004. Eighty-one percent of the students were female, and 19 % were male. About one percent of the sample were Native American, another one percent were

Hispanic, approximately one percent were Asian/Pacific Islander, 20 % were African American, and 73 % were White. Compared to data in a national report ("This Year's Freshman," 1999), the Winthrop sample contains more African American students (21 % as compared to 9 % in the national sample) and less White students (76 % as compared to 83% for the national data). The students represent a wide variety of majors including elementary education (33%), early childhood education (14%), special education (9%), music (8%), physical education (6%), English (5%), mathematics (4%), and others (21% including art, biology, history, business, dance, theater, Spanish, and French).

Methods of Data Collection

Data for this study were collected in four ways. First, researchers obtained high school GPR, college GPR, and SAT scores from university records. Second, each student completed a survey containing other variables of interest and an estimate of initial commitment to teacher education at the beginning of the semester. Third, all students who agreed to participate in the study completed the Learning Type Measure (LTM). The LTM contains quadrants numbered 1 (feeling/reflection), 2 (thinking/reflection), 3 (thinking/doing), and 4 (feeling/doing), and the highest score in a quadrant indicates a person's preferred learning style. A technical manual by McCarthy and St. Germain (1996) documents evidence about the validity and reliability of the LTM. The manual reports Cronbach alpha coefficients for the four learning type quadrants ranging from 0.767 to 0.885 and a test-retest statistic of .71. Fourth, a researcher contacted a brief follow-up telephone interview with students who did not continue in teacher education after the second semester.

Results

In spring 1999 the average GPR for university students in the sample was 2.76 with a range of 0.2 to 4.0. Twelve percent fell below a GPR of 1.8 while 34 percent were above 3.0. Fifty-four percent of the students were categorized as quadrant 1 learners (feeling/reflection), 11 percent were quadrant 2 (thinking/reflection), 13 percent were quadrant 3 (thinking/doing), and 22 percent were quadrant 4 (feeling/reflection). Multiple regression analysis identified four variables as predictors of spring 1999 GPR: SAT-V scores, high school GPR, educational level of the father, and score on quadrant 2 (thinking/reflection) of the LTM. The multiple r was .64 with an adjusted r square of .41 ($p < .000$). There was no significant difference in scores on the LTM by race or ethnicity, although significant differences existed by major and gender.

Hypothesis 1 was confirmed. Data show that a relationship exists between students' SAT scores and their GPRs. Students' SAT-V scores predict their spring 1999 GPRs. Thus, students with higher SAT-V scores are more likely to attain the GPR required for retention in college and teacher education. The Pearson correlation between spring 1999 GPR and SAT-V score was .55, $p = .000$.

Hypothesis 2 was not supported. Data indicate that no relationship exists between students' strength of initial commitment to teaching and their remaining in teacher education. Students with higher strengths of initial commitment are no more likely to remain in teacher education, and students with lower strengths of initial commitment are no more likely to leave. The Pearson correlation between degree of initial interest in teaching and remaining in teacher education was not significant.

Hypothesis 3 was confirmed. Data indicate that a relationship exists between students' learning styles or types and their GPRs. Highest scores on Quadrant 2 of the LTM (thinking/reflection) predict higher GPRs. Type 2 students are more likely to attain the GPR required for retention in college and teacher education. The Pearson correlation between Quadrant 2 LTM score and Spring GPR was .20, $p = .001$.

Hypothesis 4 was partially supported. Data show that a relationship exists between the socioeconomic backgrounds of students' parents and their GPRs. The level of the father's education predicts a student's spring GPR. Students whose fathers have more education are more

likely to attain the GPR required for retention in college and teacher education. The Spearman correlation between father's educational level and spring GPR was .19, p = .002. However, data indicate that there is no relationship between the occupation of the father, the occupation of the mother, or the level of the mother's education and students' spring GPRs. The Spearman correlations between father's occupation, mother's occupation, mother's educational level, and students' spring GPRs were not significant.

Discussion

Preliminary results from the first year of study confirm some expectations. Researchers at Winthrop University can predict student success as defined by college GPR based on results of the regression analysis. Predictor variables of beginning teacher education students' spring GPRs in descending order are SAT-V, high school GPR, father's educational level, and score on quadrant 2 of the LTM. The fact that SAT-V, high school GPR, and father's education are significant predictor variables is not surprising as their effectiveness is documented in the literature (Alwin & Thornton, 1984; McCartin & Meyer, 1988). Nonetheless, some literature indicates that level of the mother's education is often a significant predictor of achievement as well (Farmer & Chung, 1995; Lang, 1988).

In addition, predictive significance of the quadrant 2 score validates McCarthy's conception of the LTM. According to McCarthy's definition of the learning style construct, quadrant 2 learners should be the most successful academically in traditional scholarly environments (McCarthy & St. Germain, 1996). Quadrant 2 learners meet the notion of stereotypical students who perceive information abstractly, process it reflectively, learn by thinking through concepts, value ideas, and enjoy lecture and theory. Of the four types of learners depicted in LTM scores, the quadrant 2 learning style most closely matches a traditional teaching style characterized by lecture, an emphasis on theoretical concepts, a verbal mode of information processing, and abstract, analytic thinking.

Implications

Because the multiple regression analysis enables prediction of students at risk for low college GPRs, the results hold significant implications for retention of students in their freshman year of college. Moreover, implications from this study are broadly applicable to other institutions of higher education. Demographic data indicate that students in the sample differ widely by race, gender, major, level of parental education, and learning style and are representative to some extent of a diverse population in teacher education. In fact, the Winthrop University sample contains a higher percentage of African American students than would a nationally representative sample ("This Year's Freshman," 1999).

Most importantly, retention programs should be more closely tailored to the needs shown by various subgroups of students. Several examples follow. First, students with lower SAT-V scores may need assistance in study skills and areas of academic instruction. University administrators can identify undergraduate students with lower SAT-V scores and lower high school GPRs who attain admission status but are likely to encounter difficulty with college grades in the fall or first semester of their initial year. Administrators can target retention efforts specifically for at-risk students such as special advisors, sessions to teach skills (studying, reading, and writing), and mid-semester grade reports.

Second, first-generation college students require different forms of assistance such as special advising sessions to discuss unfamiliar processes. In the Winthrop sample, the higher educational levels of fathers are correlated with students' higher grades, indicating that the Winthrop University sample may contain many first-generation college students who have lower GPRs. Of the 316 students in the sample, 96 students (30 %) had fathers who did not attend college. Research indicates that first-generation college students may lack knowledge about the academic and social skills required for success in post-secondary education (Mehan, Villanueva,

Hubbard, & Lintz, 1996). Therefore, retention efforts should offer special programs that provide access to knowledge about how to succeed in college to those students (Mehan et al., 1996; Pacheco, 1994).

Third, students with varied learning types may perform better when instruction matches their preferred learning styles. According to this study, students whose learning style preferences are quadrants 1, 3, and 4 are at greater risk for lower GPRs. Both general education and teacher education faculty can and should receive appropriate professional development. Faculty can learn how to design teaching practices to accommodate the varied learning styles preferred by a majority of their students. In addition, universities can offer students counseling about their own preferred learning styles and information about ways to adapt to professors' varied teaching practices.

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Jonatha W. Vare, Associate Professor, holds a Ph. D. in Educational Psychology from the University of North Carolina at Chapel Hill. She teaches courses in development, learning, motivation, individual differences, and educational research. Her scholarship includes publications about school/university collaboration, equity, learner diversity, caring, and middle schools.

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